

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

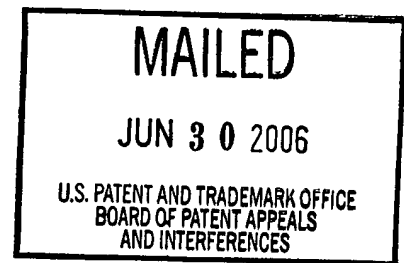
**UNITED STATES PATENT AND TRADEMARK OFFICE**

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Ex parte JEFFREY A. MARTIN, and RONALD O. RICHARDSON

Appeal No. 2006-1738  
Application No. 10/059,564

ON BRIEF



Before ADAMS, GRIMES, and LEOVITZ, Administrative Patent Judges.

LEOVITZ, Administrative Patent Judge.

DECISION ON APPEAL

This appeal involves claims to compositions for termite monitoring and control. The examiner has rejected the claims as obvious in view of prior art. We have jurisdiction under 35 U.S.C. § 134. We affirm.

Background

Termites are well known for their destructive effects on various building structures. Specification, page 1, lines 9-10. To monitor termite infestation, bait stations have been developed which contain substrates, such as natural wood or cellulose products, which are normally ingested by termites. By monitoring the appearance of termites in the bait stations, termite infestation can be detected, and then

appropriate measures taken to control the population (e.g., the introduction of a termite-killing agent). The application states that the load capacity of currently available bait stations is restricted, requiring the stations to be refilled approximately once per month or less. "Substantial labor saving would be realized if the monitoring intervals could be extended to longer periods of time." *Id.*, page 2, lines 12-13.

As a solution to this problem, a termite bait is provided which is compacted to a density of not less than approximately 1.033 g/cc, extending the time for monitoring without having to refill the bait stations. Compacting to a greater density allows more mass to be loaded into the bait station. In Table 1 (*Id.*, page 8), various tablets are produced under different compacting pressures. As the pressure is increased, the density also increased, allowing more bait to be crammed into the same bait station. Calculations were performed to show how the intervals to refill bait stations are extended by the high-density tablets. See, e.g., *Id.*, page 5, lines 10-18.

### Discussion

#### 1. Claim construction

Claims 1-8 are on appeal. Claims 9-24 are also pending but have been withdrawn from consideration by the examiner. The claims were not separately argued, and thus stand or fall together.

Claim 1, the broadest and sole independent claim on appeal, reads as follows:

A composition in compacted form for use for termite monitoring and control comprising a cellulose material selected from the group consisting of purified cellulose and micro-crystalline cellulose as a base bait, said composition being compacted to a density of not less than approximately 1.033 g/cc.

The preamble of the claim indicates that the claimed composition is “for termite monitoring and control.” The claim body does not refer to the “termite monitoring and control,” nor does it provide any definition or structure to it that would indicate how it would limit the claimed composition. While it is true that a preamble of the claim can “breathe life and meaning into a claim,” it appears here that the claim language is merely an intended use of the claimed composition, without defining a tangible limitation, such as a structural feature. For this reason, we do not consider it a patentable limitation. See, In re Schreiber, 28 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed.Cir.1997).

The claim body indicates that the compacted cellulose is to be used “as a base bait.” Once again, this is an intended use. To determine whether this adds structure, we need to refer to the specification. Bell Comm. Res., v. Vitalink Com., 55 F.3d 615, 620, USPQ2d 1816, 1820 (Fed.Cir.1995). Throughout the specification, bait is described essentially as an attractant that is ingested by termites. See, e.g., Specification, page 2, lines 19-27; page 5, line 3. Bait consumption is monitored to determine the presence of termites. However, there does not appear to be any definite structure required to be considered a bait. For example, on page 4, lines 27-29, it is described as being in the form of “tablets, briquets, pellets, spikes, granules, or extruded forms which may be made by tablet presses, roller compaction or other means known to those skilled in the art.”

The preamble also indicates that the composition, which contains either purified cellulose or micro-crystalline cellulose, is “in compacted form.” The latter is linked to the body of the claim, where the composition is described as being “compacted to a density

of not less than approximately 1.033 g/cc.” There is no guidance in the specification as to what range of values is covered by the term “approximately.” Thus, we construe the term to indicate that the minimum density is not fixed precisely at 1.033 g/cc, but includes values outside this range; however, it is not clear how far outside this number the claim reaches.

## 2. Obviousness

The examiner rejected Claims 1-8 as being unpatentable under 35 U.S.C. § 103 over Richardson<sup>1</sup> in view of Minagawa<sup>2</sup>.

Richardson discloses termite bait containing cellulose, including microcrystalline cellulose. Richardson, column 1, lines 30-35; column 2, lines 26-28. The termite bait composition, according to Richardson, “may be compressed into tablets or granular form for placement in a termite bait station.” Id., column 2, lines 65-67. However, Richardson does not disclose the density of a tabletted termite bait, nor operating pressures at which the compression process may be accomplished.

Minagawa describes making bait tablets for control of noxious insect utilizing a “conventional procedure ... normally under a pressure of about 10 to about 500 kg/cm<sup>2</sup>.” Minagawa, column 4, lines 15-18. The disclosure does not restrict the tableting process to the recited pressure range, but only describes it as a normal operating range. In its examples, a specific compression pressure was used to prepare tablets. Their “tableability” was evaluated by observing the occurrence of cracks in the tablets. See, e.g., Id., section titled “Tableability” at Column 4, lines 59-65.

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<sup>1</sup> Richardson et al. (Richardson), U.S. Pat. No. 6,416,752, issued July 9, 2002.

<sup>2</sup> Minagawa et al., (Minagawa), U.S. Pat. No. 5,096,710, issued March 17, 1992.

In rejecting the claims, the examiner argued that it would have been obvious to have compacted the cellulose substrate disclosed in Richardson and Minagawa using the pressure conditions described in Minagawa. Examiner Answer, page 4. The motivation to combine the references, and optimize composition density, was to improve handling and for safety reasons (citing Richardson at Column 3, lines 9-15) or to prevent cracking, a problem allegedly observed when crystalline cellulose is utilized (citing Minagawa at Column 1, lines 48-60). See, e.g., Examiner's Answer, page 3, lines 13-15; page 4, lines 6-9; page 5, lines 5-9.

Appellant argued that “[n]othing in either of these references provides any hint that the density parameter is to be optimized to achieve the superior and unexpectedly good results” allegedly achieved by the claimed invention. See, Reply Brief, lines spanning pages 5-6. These results were described in a declaration that allegedly established that “the compressed cellulose tablet of the present invention was highly preferred by the termites over the other two choices,” and that such results were “unexpectedly good and beyond what one skilled in the art would expect ....” Appeal Brief, page 10. Citing In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977), the Appellant further stated that there was no recognition that density was a “result-effective variable.” Reply Brief, page 6.

We agree with the examiner that Richardson in combination with Minagawa establishes prima facie obviousness, shifting the burden to Appellant to rebut it.

The application discloses on page 8, line 5, that a tableting pressure of 516.53 kg/cm<sup>2</sup> resulted in a tablet having a density of 1.033 gm/cc, the density recited in claim 1. In Minagawa, a conventional tableting pressure of “about 500 kg/cm<sup>2</sup>” is disclosed

for making bait tablets. The examiner treated these values as the same (Examiner's Answer, paragraph spanning pages 5-6), concluding that compacting cellulose utilizing the pressure disclosed in Minagawa ("about 500 kg/cm<sup>2</sup>") would result in a compacted composition having the claimed density.

We see no reason to treat the prior art pressure of "about 500" as different from the 516.53 value which is disclosed in appellant's application to produce a composition having a density of 1.033 g/cc. Appellant urged that the compacting pressures disclosed in Minagawa were "much lower" than the pressures used in their "invention" (Appeal Brief, page 9), but did not address the degree of disparity between the prior art "about 500 kg/cm<sup>2</sup>" pressure condition and their own of 516.53 kg/cm<sup>2</sup>, which are no more than 3.3% ((516.53-500)/500) different. Nor did they explain why "about 500" would not be understood by the skilled worker to overlap with their own pressure of 516.53, when the word "about"<sup>3</sup> is clearly a term of approximation.

Appellant characterized their own pressure range as "between 516 and 1377 kg/cm<sup>2</sup>." Reply Brief, page 5, lines 24-26. Thus, the pressure range utilized in the application ("between 516 and 1377 kg/cm<sup>2</sup>") to produce the compositions with the claimed density overlaps with the pressure range disclosed in Minagawa ("about 10 to about 500 kg/cm<sup>2</sup>").

"When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as

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<sup>3</sup> "about .... APPROXIMATELY." Webster's New Collegiate Dictionary, G & C Merriam Co., 1976.

evidence of obviousness.” In re Sang Su Lee, 277 F.3d 1338, 1343, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002). A suggestion, teaching, or motivation to combine the relevant prior art teachings does not have to be found explicitly in the prior art. “[T]he teaching, motivation, or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references. The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art.” In re Kahn, 441 F.3d 977, 987-988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). Since Minagawa describes a pressure of “about 10 to about 500 kg/cm<sup>2</sup>” as a step in a conventional tableting process for termite bait, the skilled worker would have been motivated with a reasonable expectation of success to have applied it for the purpose of compressing cellulose termite bait, which is described in both Richardson and Minagawa as a bait ingredient. The resulting cellulose bait compositions would reasonably be expected to possess densities that overlap with the claimed compositions in compacted form.

In concluding that the claims are obvious, we do not rely on the examiner's findings regarding motivation. Prima facie obviousness has been found when the claimed range and the prior art range do not overlap, but are close enough that one skilled in the art would have expected them to have the same properties, shifting the burden to the applicant to show they are different. Titanium Metals Corp. v. Banner, 778 F.2d 775, 783, 227 USPQ 773, 779 (Fed. Cir. 1985); In re Geisler, 116 F.3d 1465, 1469, 43 USPQ2d 1362, 1365-1366 (Fed. Cir. 1997). As discussed above, we find that the prior art range of “about 10 to about 500 kg/cm<sup>2</sup>” overlaps with, or is at least close

enough to, the range utilized to produce the claimed compositions (“between 516 and 1377 kg/cm<sup>2</sup>”), leading to the expectation that the compacted compositions would exhibit similar properties. We recognize that this case differs from Titanium, since it is not the claimed range which overlaps, but rather it is an overlap in the conditions which were utilized to produce the claimed range. Nonetheless, the principle is applicable since the claimed density would be reasonably expected to result from applying the pressure disclosed in Minagawa.

Once a prima facie case is established, the burden shifts to the applicants “to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product.” In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980); In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977). Appellant did not rebut the examiner’s allegation that a pressure of “about 500 kg/cm<sup>2</sup>” would produce a composition of the claimed density. Rather than explain why Minagawa’s pressure condition would not achieve the claimed density, appellant stated that its disclosure would not have led the skilled worker to investigate the parameter of density. Appeal Brief, page 9, lines 1-3. But investigation is not required in these circumstances because the density would have been an inherent property of carrying out the process described in Minagawa for producing bait tablets. Thus, absent any evidence to the contrary, we agree with the examiner that, when a pressure described in Minagawa is utilized to compact a cellulose composition, a resulting density that meets, or overlaps with, the limitation of claim 1 would reasonably be expected.



As an aside, we note that the claim language reciting a density of “approximately 1.033 g/cc” indicates an express intention to capture compositions that fall outside the precise numerical density recited in the claim. Thus, even if the 500 kg/cm<sup>2</sup> were utilized to compress cellulose, and a composition was obtained having a density that was less than, and not exactly, 1.033 g/cc, such composition could still meet the claimed limitation.

Appellant repeatedly emphasized in the Briefs that the cited prior art did not teach or suggest investigating density as a parameter to achieve improved results. See, e.g., Appeal Brief, page 9; Reply Brief, page 7. However, it was not disputed by appellant that density is a function of compacting pressure, and the latter is very definitely described in Minagawa as a variable of the compacting process. Moreover, appellant’s argument that the references do not provide any hint that the density parameter is to be optimized to achieve the alleged “unexpected results” (Reply Brief, lines spanning pages 5-6) is directed to the intended use (i.e., feeding preference or the ability to cram more bait into a bait station) of the claimed composition, and the claim is not so limited.

In the Reply brief, Appellant urged that exception recognized in In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977), was applicable to the appeal here, i.e., that while discovery of an optimal value of a variable in a known process is normally obvious, there is an exception where a parameter had not been recognized as being a “result-effective variable.” However, the facts of this appeal can be distinguished. In re Antonie, 559 F.2d at 619, 195 USPQ at 8, involved a parameter (“ratio of tank volume to contactor area”) recited in the claimed invention that had not been mentioned, or even

alluded to, in the cited prior art. In contrast, pressure – a surrogate for density – was recognized in Minagawa as a variable of the compacting process. These prior art pressure conditions produce compositions which overlap, or are very close to, compositions having the claimed density. This is sufficient to establish prima facie obviousness. Titanium Metals Corp. v. Banner, 778 F.2d 775, 783, 227 USPQ 773, 779 (Fed. Cir. 1985); In re Geisler, 116 F.3d 1465, 1469, 43 USPQ2d 1362, 1365-1366 (Fed. Cir. 1997).

Once prima facie obviousness has been established, an applicant for a patent can rebut it with “a showing of ‘unexpected results,’ i.e., to show that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected. The basic principle behind this rule is straightforward - that which would have been surprising to a person of ordinary skill in a particular art would not have been obvious.” In re Soni, 54 F.3d 746, 750, 34 USPQ2d 1684, 1687 (Fed. Cir. 1995).

A declaration was provided during prosecution by Dr. Brian T. Forschler (the “Forschler declaration”). This declaration described feeding differences in termites that were presented with three different baits: pine wood, powdered cellulose, and compressed cellulose bait matrix subjected to a compaction pressure of 8590 lbs. and having a final tablet density of 1.1 g/cc. Forschler declaration, ¶ 2. The declarant stated that the compressed cellulose tablet was highly preferred by the termites over the other two choices (¶ 2), but did not provide any reason as to why such a result was unexpected.

The declaration is insufficient to overcome the rejection. The declarant did not state that such results were unexpected, nor did he provide any objective evidence of what would have been the skilled worker's expectations. The attorney argued that such results were "unexpectedly good," but such statements were conclusory and not supported by evidence of a skilled worker's expectations. In re Soni, 54 F.3d 746, 750, 34 USPQ2d 1684, 1687 (Fed. Cir. 1995). This is also troubling since Minagawa described a compacted tablet utilized as an insect bait (e.g., Column 4, lines 51-56), indicating that the skilled worker would have recognized it as an adequate feeding attractant.

It has been consistently held "that the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990). Appellant has provided no evidence that the claimed densities, e.g., not less than approximately 1.033 g/cc (claim 1) or between approximately 1.033 g/cc and 1.377 g/cc (claim 7), are critical to the invention. For example, no comparison was made in the Forschler declaration between compacted baits have more or less than the claimed densities. From the specification, it appears that the magical number of "approximately 1.033 g/cc" was chosen based on the loading capacity of a conventional bait station and an arbitrary time period in which to extend the monitoring period. Specification, Page 5, lines 1-19. Thus, had a larger sized station have been used, the recited lower limit density may have been claimed differently. The density of 1.377 g/cc at the upper limit of claim 7 appears to simply be

the highest density obtained (Id., page 8), but no explanation is given as to why it was selected, nor whether it was considered to be a critical value.

Because we affirm the rejection of claims 1-8 over Richardson in view of Minagawa, it is unnecessary for us to consider whether Richardson alone renders claims 1, 2, 4-6, and 8 obvious. Examiner's Answer, page 3.

#### Other Issues

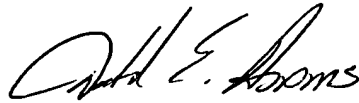
Having construed claim 1 to not be restricted to compacted cellulose termite baits, we are mindful that the claim may cover other types of cellulose compositions having a density of at least 1.033 gm/cc, irrespective of the intended use. If further prosecution is pursued in this application, the examiner should consider the relevance of the following references: U.S. Pat. No. 4,357,467; U.S. Pat. No. 5,574,150; and U.S. Pat. No. 5,674,507.

#### Summary

We affirm the rejection of claims 1-8 as obvious in view of Richardson in view of Minagawa et al.

No time period for taking any subsequent action in connection with this appeal  
may be extended under 37 CFR § 1.136(a).

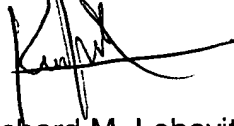
AFFIRMED



Donald. E. Adams  
Administrative Patent Judge



Eric Grimes  
Administrative Patent Judge



Richard M. Lebovitz  
Administrative Patent Judge

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